Technology Services
2005 Annual Report

A State of Technology report was presented at the October 18, 2005 Selectmen's Meeting and forms the basis for this Annual Report 2005. The report was a reflection on my twelve year tenure with the Town of Framingham and examined the mission of Technology Services; its organizational structure and staffing to support delivery of services; the evolution of the municipal network; 2005 accomplishments and 2006 goals and a look at the future relative to capital planning.

The mission of Technology Services is to develop and maintain efficient, cost effective information and tele-communications systems for the Town and assure their successful utilization; to enhance productivity by providing the necessary up-time and support services to its customer base; to uphold the Town by-law as it relates to Technology (Section 17); and to provide "Excellence in Public Service" consistent with the Town's Customer Service Policy.

Technology Services is staffed by 7 FTEs including the Director and organized around the following service divisions (1 FTE per service area).

The Administration service area is responsible for department budgeting, capital and project planning, operations management, requests for proposal (RFP) development, contract negotiations, town and school technology acquisitions, and research & development.

Applications/MIS is responsible for the implementation and ongoing support of the town and school financial and human resource applications including general ledger, purchasing, accounts payable, budgets, payroll/personnel, real estate and personnel property billing and collections, utility billing, and accounts receivable. An integrated software package from Munis provides the applications.

Data Base Services provides support and development for the property data base that includes permits, licenses, inspections, web based mapping and property inquiry and the development of mobile field applications. The position also supports Engineering's GIS Coordinator and several Department databases such as Police evidence.

Network Services is responsible for the town's Local Area Network (LAN); its Municipal Area Network (MAN); and its Wide Area Network (WAN) as well as hardware installations, support and upgrades; troubleshooting servers and locations and security.

Exhibit A documents the Town's network servers and communications

equipment while Exhibit B maps all town sites on the MAN, the fiber network provided by RCN in conjunction with its cable contract with the Town.

Public Safety Systems Administration supports Police, Fire, and the Emergency Operations Center and all its applications including software provided by Keystone (CAD, Police Records), Firehouse (Fire Records), On-duty (Police Scheduling), Identix (Fingerprinting) and Dynamic Imaging (Mugshots).

User Services provides Help Desk support, maintains hardware and software inventories, performs audits for licensed software, and is responsible for PC and peripheral troubleshooting and upgrades, software upgrades and training, and Town Meeting presentation assistance.

In addition in recent years there has been a significant increase in both computer viruses and SPAM (unsolicited email) and this position has assumed responsibility for researching and implementing controls. This year alone, seventy five percent of the 2.5 million emails sent to the Town of Framingham's email domain were marked as SPAM by our Barracuda SPAM filter and over 91,000 viruses were blocked. Fortunately, the Town of Framingham computer network was virus free in 2005.

Voice and Office Services is responsible for the administration of the department including budgeting as well as administering the telephone contracts and billing audits for school and town local and long distance services. This position also supports the Town's telephone and voice mail systems and any telephone adds/moves and changes at Town Hall and has been instrumental in the planning and installation of the Town's new phone systems in 2005.

In the absence of a designated webmaster, this position has also assumed a primary role in the development and ongoing support of the Town's website www.FraminghamMA.gov

2005 Accomplishments

Former Town Manager, George P. King, Jr. was the first in Massachusetts to implement a **Town Manager Blog** on the town website as a way of communicating happenings within town government to Framingham residents and taxpayers. (Blog is short for "weblog" or a journal or newsletter that is frequently updated and intended for the general public).

A **mailing list service** was set up to enable email notification of the posting of town meeting materials; municipal news; public safety and public works notices. The list service will be expanded to include other categories over time.

A calendar and web, on-line data base were developed in conjunction with the **Cultural Council**. This comprehensive listing of events, artists, and venues in Framingham was developed to provide citizens the ability to seek out the cultural resources of their community, including painters, educators, actors, photographers, singers, musicians and more. The web interface also provides an easy calendar search for upcoming events that in turn link to the database entries for associated venues and participating artists. Citizens can also post their own events, submit an entry for their artistic skills, or send information about a venue in town.

A major Town/School **financial system upgrade** was completed in October after months of testing and user training. The software provided by Munis is now on its most current release 2004.03 and ready for calendar year processing of employee W2's and vendor 1099 forms. The vendor typically publishes a major release and three to four minor releases annually. The upsides are functional improvements available at no cost per our maintenance agreement while the downside is the effort required to work around production schedules and thoroughly test each release before going "live".

In an effort to maintain a stable, state of the art environment, the town's office automation software was also upgraded to Microsoft Office 2003 and 47 obsolete 400 MHz/8 Gigabyte hard drive PCs purchased in 1999 were replaced with current generation 3 GHz PCs with 40 gigabyte hard drives. The new PCs funded by Town Meeting were purchased for almost half the unit cost of the old ($1,500 versus $788). Noteworthy is the decrease in hardware costs and corresponding increase in performance over the past five years.

The implementation of a **new Town telephone system**, funded by a grant from Lifeline Systems, was initiated in 2005 and several Town Hall departments as well as the Parks and Recreation Department and the new Council on Aging facility on Union Avenue have been fully installed as of year end.

The chosen IP Telephony Solution is ideal and cost effective for an environment comprised of several sites by taking advantage of the fiber MAN to carry voice as well as data and eliminating call charges associated with within-town departments and sites.

Operational costs are also reduced by standardizing on one platform, centralizing administration internally for add/moves/changes. The system also requires fewer lines but provides more direct dial capability and improves customer service and productivity through enhanced functionality and voice mail capabilities, such as integrated messaging with the town e-mail system.

New **Public Safety applications** have been developed to track gang members and benchmark national fire protection association (NFPA) response time standards. A new software release with enhanced reporting capabilities has also been tested. Working in conjunction with the Police Department and the state, the Criminal Justice Information System (CJIS) was upgraded and reconfigured to enable access from any authorized PC on the Town public safety sub-network.

Technology Services staff also participated in an Emergency Preparedness table top exercise that simulated a train wreck with unknown chemical spill and the opening of the Emergency Operations Center when a natural flood disaster required the evacuation of apartments and the opening of a shelter.

Network Surveillance Cameras were installed in several key locations such as the Incinerator, Town Hall and Water and Sewer pumping stations. The extension of the fiber MAN provided by contract with RCN to 4 water and 2 sewer pumping stations enabled not only the addition of surveillance equipment for homeland security purposes but also access to the DPW Supervisory Control And Data Acquisition (SCADA) system for remote performance monitoring and environmental measurements and the installation of wireless hot spots that can be used by mobile laptops to gain secure access to the town network.

In 2005, a paradigm shift toward **wireless access** was noted with a total of 21 laptops deployed in DPW, the Fire Department and Board of Health for use with field applications. DPW laptops are vehicle mounted for use with their GIS and Asset Management Systems. Field applications for Fire and Board of Health inspections are also under development and currently being prototyped at wireless hot spots and along Edgell Road.

A mini outdoor wireless pilot was implemented to test a possible town-wide wireless solution. Four Tropos external points provide roaming wireless access and a proof of concept from the intersection of Water and Edgell Road to the intersection of Brook and Water Streets. Three additional units will extend the path from the Brook/Water intersection toward the Saxonville branch library and the Edgell Road water station. Tropos uses a mesh technology to connect access points and the MAN to backhaul to Town Hall with Virtual Local Area Network (VLan) and Virtual Private Network (VPN) security.

The goal of providing direct web access to our over $1 million investment in Geographic Information System (GIS) infrastructure was achieved in 2005. Citizens can query map data to locate transit, business, park and recreation areas, historic properties, schools,

hiking and biking trails, voter districts, zoning locations.

Each type of map contains additional attribute data and links to provide citizens with transit schedules, pertinent phone numbers, school web sites, zoning by-laws and aerial photography of the chosen location. The maps also link to the permit history for each property and the assessor valuation, ownership, and classification information. The software vendor, VDS Technologies, links to our mapping application on their website as a best-in-class site.

Several **Network Projects** were also completed including: the relocation of Council on Aging (network and phones) to its new location on Union Ave and the implementation of a Network Accessible Storage (NAS) solution at the main Library for off-site, unattended system backups. Our network servers were upgraded to the Windows 2003 operating system and remote SNMP (simple network management protocol) monitoring of Cisco installed hardware was implemented with email alerts of failures and problems along with web based Virtual Private Network (VPN) security protection against unauthorized wireless traffic. The configuration and planning for a hardware and data base upgrade of the Assessor's Computer Aided Mass Appraisal (CAMA) system upgrade has been completed for installation in the spring of 2006.

Projects in Progress

Several projects spanning multi-years are in the planning or implementation stages, including:

Data Storage, Document Management and Disaster Planning

These important, interrelated components of a stable but ever changing environment demand continual enhancement. With over 20 years of online data, including data from two retired financial systems on magnetic media we are experiencing a disk space crisis, however much of this must be retained for time intervals defined by Massachusetts Public Record Laws.

Options evaluated included: 1) print and store paper records in an identified archival location; 2) identify and delete any data not subject to retention requirements; 3) increase current capacity on each server; 4) implement a Storage Area Network appliance (SAN) capable of being accessed across multiple servers and platforms.

The last option approved at the Annual Town Meeting in April, 2005, and funded as a capital project in the amount of $91,770, doubles current capacity and provides a foundation for data redundancy and disaster recovery with a second mirrored unit in the Library.

Web Redesign/ Content Management

The town website represents a commitment to enhanced customer

service by making town hall services available via the web on a twenty four hour by seven day a week basis. Significant development has taken place since its first introduction in 1999 despite the lack of a dedicated webmaster. The focus has been to make content like town meeting materials, bylaws, agendas and minutes as well as applications like property inquiry, web access to maps, streaming video of meetings, a cultural database and on-line payments readily available on-line.

The website now needs to be redesigned for better organization and categorization of materials in a new format that provides ADA compliance and security needs to be enhanced to promotes the decentralized posting of materials. Content Management software was purchased in 2005 and is in the process of being implemented, a slow process without dedicated resources. A webmaster position has also been requested in the budget for FY 2007.

Capital Planning

From a long range planning perspective, over the next six years (FY06-FY11) the following strategies must be addressed:

Public Safety hardware and software upgrade.

Existing hardware and software in the Police and Fire Department are twelve years old and obsolete. Homeland security issues and the need for interagency communication and data sharing have surfaced as critical issues since 9/11/2001 and the World Trade Center disaster. Do diligence planning is currently underway with a survey of the market for enhanced dispatch, emergency operations, integrated mapping, vehicle tracking and reporting capabilities. A capital budget submission is anticipated in FY 2008.

Evaluation of **mobile, wireless voice and data communications options**

Emerging technologies have been a research and development goal of Technology Services over the past four years. The Police Department has had laptops in their cruisers for ten years.

Many applications already exist in DPW, Fire and Inspectional Services that are field deployable. The existing low-band licensed frequency in use in the Police Department supports the look up of license plates but is too slow for surveillance data, mugshots, maps or even interactive real-time queries and reports. DPW has developed fixed assets applications to make water and sewer infrastructure data available at the site or a water main break or a sewerage spill. The Building, Fire and Health Departments need access to permits, licenses and inspectional data as well as the ability to schedule appointments from the field.

The fiber Municipal Area Network (MAN) provided by RCN provides excellent backbone coverage of the town. Mesh network technology for mobile access has matured and several vendors provide not just the

technology but the necessary security layer as well. A side benefit is the potential for providing outdoor wireless access to the Internet to the community at large as is being done now in several cities.

Unfortunately, the cost and competition for limited funds is significant. Two years again, a proposal was prepared for a bond override that failed to materialize and in FY '07 the two million dollar capital request has not been prioritized for funding. Opportunities for public/ private and grant funding continue to be explored but the solution needs to be addressed imminently and strategically.

Hot Site Disaster Recovery is another strategic plan component. Procedures for data backup and recovery have always been in place, however the time it takes for a system restore depends on the nature of the problem. A worst case scenario could be several days to weeks if new hardware must be ordered and installed; and the operating system and applications reloaded. Given the 2005 installation of a storage area network with on-line data redundancy, server redundancy is the next step and the decrease in hardware costs makes it feasible. The first priority is to provide hot site recovery for the town financial and human resource/payroll system similar to that currently in place for public safety (dual servers located in different parts of town).

Data Warehousing software provides an enterprise-wide framework for managing the search and retrieval of data by providing an informational, public records umbrella for data from disparate operational systems. Following a building block approach, the data storage solution installed in 2005, provides the foundation upon which data warehousing systems can now be evaluated and incorporated into future plans.

Technology Services 2005 Statistics

The Town is a member of ICMA (International City County Management Association whose mission is to create excellence in local government by benchmarking delivery of services. Utilization of services continues to increase and reliability of our servers and applications remains extremely high. Some of the statistics that Technology Services maintains and monitors include:

Staff FTEs including Director:	7
Operating Budget: (% of Town General Fund)	1.1
Servers	28
Municipal Area Network locations	29
PCs	350
New or replacement PC installs	104
Wireless Laptops	50
Network Surveillance Cameras	6
Wireless Access Points	11
Users	377
New User set up and training	75

Web Statistics

- 387,599 page views from 119,603 visitors to our website from 116 countries. Below are the top ten countries that accessed our site.
  1. United States
  2. Canada
  3. Great Britain (UK)
  4. Brazil
  5. Nigeria
  6. Germany
  7. India
  8. France
  9. Italy
  10. Netherlands
- 1,142 web postings.
- 308 online comments/requests received.
- Over 320 requests from citizens were routed directly to the appropriate department this year by the email notification application running on the Intranet server.
- Over 250 property inquiries a day, 7 days a week, 24 hours a day. (Almost double the rate from last year.)
- Over 40 permit and license inquiries a day. (About 30% more than last year.)
- 1,311 digital property photos available through both the mapping application and the Assessor property inquiry. (There are approximately 19,000 properties with assessed structures in town. As photographs are taken by the Assessor's office in response to permit reports generated by the Building Department for new and renovation construction they are posted on the web).
- Over 100,000 permit records and over 250,000 related names (applicants, owners, contractors, installers, surveyors, botanists, engineers) in the PermitsPlus database. Over 11,000 new permit records were added this year.
- Almost 250 applications for Park and Recreation programs were entered by citizens using the online registration on the Town's website, saving a trip to the Park and Rec office for each citizen that chooses to register online.
- Since going live in October, the Cultural Database web application has logged over 100 events, 557 artists and organizations, and 67 different venues.
- Since going live in March, the mailing list service has logged 250 subscribers and notices are sent when to citizens when Town Meeting materials; Municipal News and Announcements; Public Safety notices or Public Works notices are posted.
- The Town Manager blog has over 20 newsletters since the service went live in August.

Financial System (Munis) statistics

- There are 250 School and Town users of our integrated financial/revenue application (Munis).
- Over 11,000 email notifications for Munis requisition approvals were sent this year by the notification application running on our Intranet server.

- Over 3,000 paper attachments from Accounting and Human Resources were scanned and stored. (invoices, vendor documents, resumes, certifications, and performance reviews)

Document Archive

- The document management server (LaserFiche) has archived over 96,000 new document pages since March. The majority of these are Utility Billing and Payroll reports.

Help Desk Activity

- During 2005, the Help Desk answered over 1,498 calls. Of these, 1,363 were closed the same day.
- 271 off-site problems at various locations and 105 in-house calls were remotely resolved using Remote Help desk software.
- During 2005, Data Base Services logged 360 new service calls. By ICMA category: 48 new installs: 163 upgrade/change requests; 4 systems problems; and 77 repair calls. The other 68 were uncategorized (meetings, department support, planning).
- Assisted town departments, town meeting members, boards and commissions in the preparation of 52 Town Meeting presentations held over 14 nights starting April 26th; trained presenters in the use of the laptop and remote control.
- Assisted in the preparation of 43 presentations for 7 Special Town Meetings
- Set up a stand alone PC for Town Meeting members to type on the floor amendments to motions.

Network Statistics

- Of 2.5 million emails sent to the Town of Framingham's mail domain more than 75% were tagged as SPAM.
- This year's virus research yielded 796 new viruses, worms and Trojans reported through various publications.
- Close to 100,000 viruses were blocked in 2005.
- The Town of Framingham computer network was **Virus free** during the year.

Public Safety Statistics

- Since going live in January, Police Evidence Inventory and Bar coding has cataloged over 2,300 evidence items and tracked 6,000 transfers between locations.

Server up time statistics (These statistics do not include scheduled reboots for software upgrades, service pack installs and critical updates that are done off-hours.)

Mail Server	99.88%
(Unavailable 10 hours in 2005)	
File and Print Servers	
File	100%
Print	97%
Applications Server	100%
Police Mugshots and Onduty	100%
Web server	100%
Assessor server	100%
Document Mgmt Server	100%

SQL Server	100%
Intranet Server	100%
Web inspector Server	100%
Real Audio Server	100%
DPW-Video Surveillance Server	100%
Retirement Server	100%
Network Monitoring Server	
(new, no stats available)	
Cat6500 fiber network	99.96%

Voice Services

- 76 Voice over the Internet (VOIP) telephones were installed in 2005. Created 90 users (including department main lines and auto attendants) in 11 departments.
- New 532 exchange for the Town.
- Cancelled 28 Centrex phone lines for departments that are now able to utilize the PRI lines. (Any published Centrex lines will be kept until June 2006 when the phone directory is updated with new department lines.)
- 1000 new Direct Inward Dial (DID) lines on the PRI that enable enhanced dialing and voice mail capabilities.

Since the department was reorganized in FY '04, Technology Services has focused on building and maintaining a solid foundation. This, in conjunction with hiring, developing and retaining staff has produced dividends in the ability to develop expertise and build on past accomplishments that in turn have helped to contain outsourcing and consulting costs without adding staff over the past ten years. (See Exhibit C).

Research and development are important staff goals that motivate and promote longevity. Our approach has centered on a "best of breed" philosophy that has resulted in several innovative firsts among Massachusetts communities. Examples include real-time, web-based permits, property and mapping queries from "live" data bases; the development of a unique database of cultural activities and on-line streaming video of public meetings. (We are completing our second year of online video streaming of Selectmen and Town Meetings and this year added Planning Board meetings to the online library at the request of our constituents).

The Town is fortunate to have recruited and retained seven experts to each of its service areas with over 145 years of combined technical experience. Low department turnover (average longevity is 8 years) and a team approach to projects has enabled cross-training and maximized productivity and innovation with a small but dedicated staff.

Technology Services has been recognized for its delivery of Customer Service not only to internal customers but also to the growing base of external web-based customers that includes Town Meeting. Since the awards inception, six employees have received

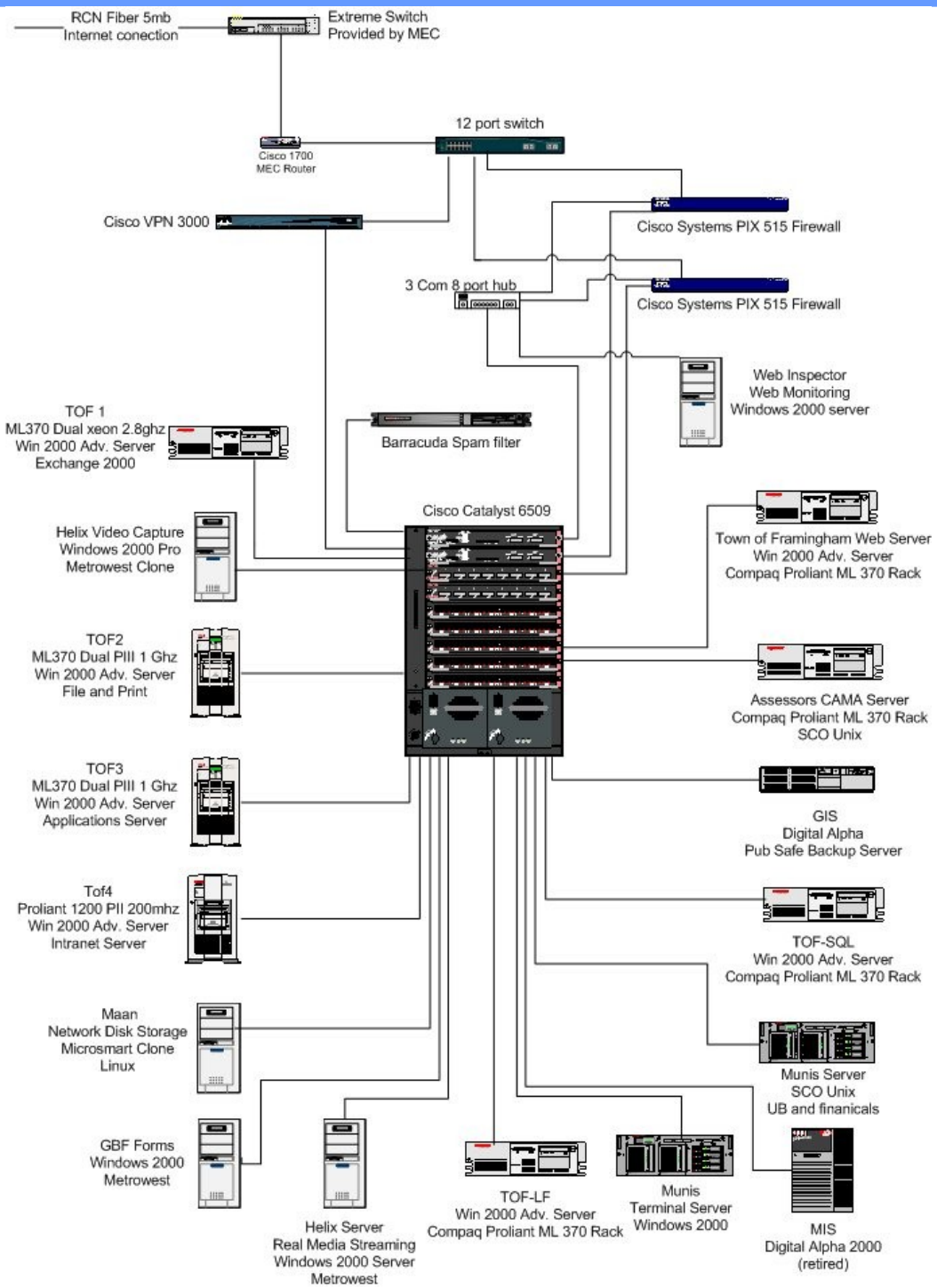
Employee of the Quarter and Customer Service recognition awards.

The Department has established a leadership role in fostering state and local technology collaborations. The Director has served in several capacities over the years as a Board Member of the Massachusetts Government Information Systems Association (MGISA) serving as its President in 2005. For the past two years, the Director has also served on the Board of Directors in planning the MA Digital Government Summit held annually in Boston in the fall.

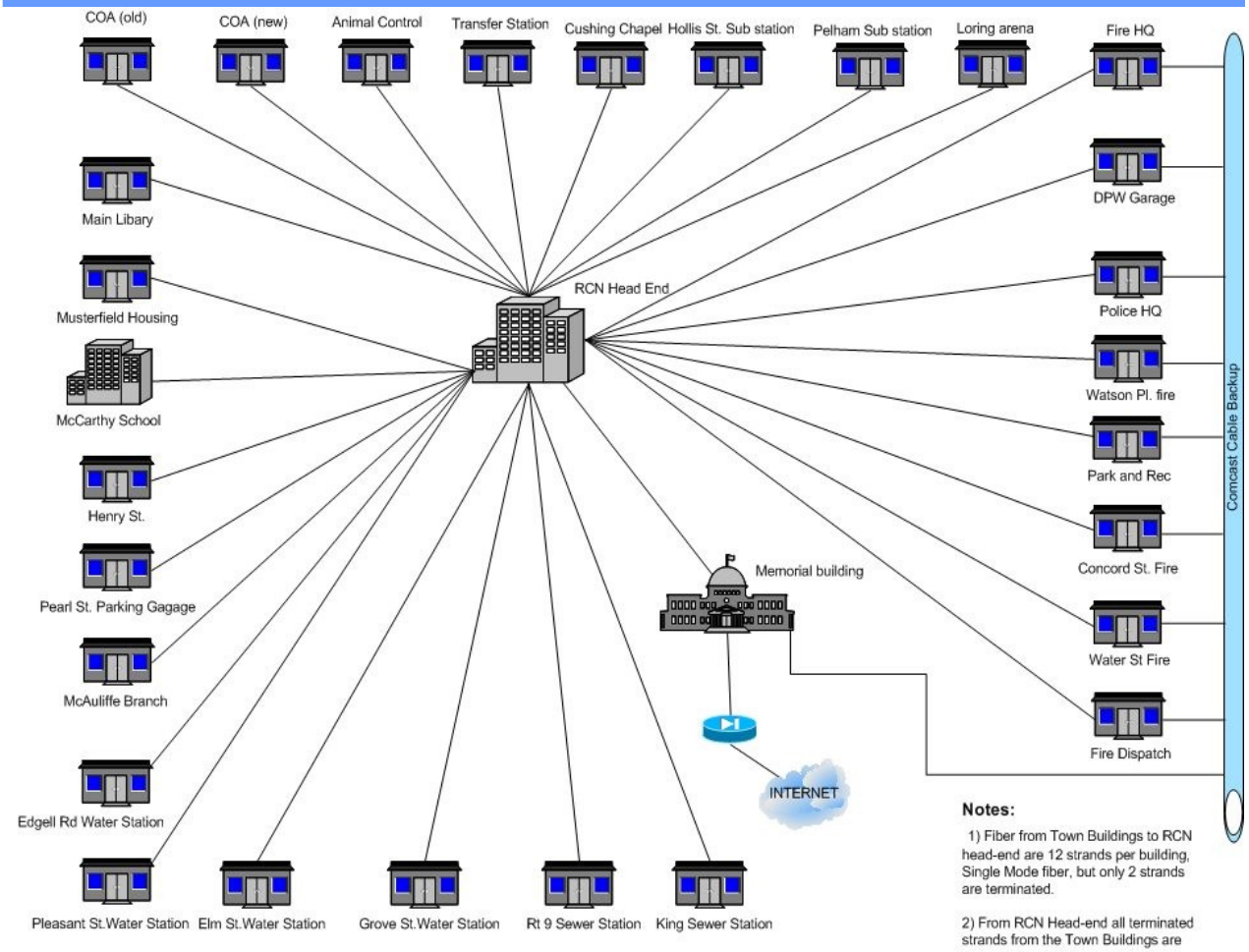
Respectfully submitted

Kathleen F. McCarthy
Director, Technology Services

Town of Framingham
Technology Services – Exhibit A
Network Servers 2006



Town of Framingham
Technology Services – Exhibit B
Network Locations 2006



Notes:

1) Fiber from Town Buildings to RCN head-end are 12 strands per building, Single Mode fiber, but only 2 strands are terminated.

2) From RCN Head-end all terminated strands from the Town Buildings are "patched" to the Memorial Building.

Town of Framingham
Technology Services – Exhibit C
Statistics 1993-2005

	FY 94	FY '96	FY '01	FY '03	FY '06
Paradigm Shifts	Standalone PCs/ Centralized	Networked MAN/ De-centralized	World Wide Web	Wireless	IP Telephony
Op. Budget (% Town G.F.)	$318,656 (0.7%)	$633,213 (1.2%)	$714,034 (1.0%)	$825,844 (1.0%)	$1,039,134 (1.1%)
Capital Budget	$617,000 PCs, Net	$1.352M PS, MIS		$584,500 MIS Upgrade	$91,770 Data Storage
FTE's	3	6	7 (PS transfer)	7	7
Users/Web PCs/Wireless	33 / 0 33 / 0	274 / 0 204 / 0	350/no stats 354 / 0	391 / 77,300 351 / 15	377 / 118,625 350 / 50
Servers/Locs/ WAPS	1 / 1	7 / 8	13 / 24	24 /26 /2	28 /29 /11